

*Amendments to the Claims*

The listing of claims below will replace all prior versions and listings of claims in the present application.

*Claim Listing*

1           1. (Original) A method of negotiating point-to-point protocol (PPP), the method  
2 comprising:  
3           receiving a first configuration request packet at a first network element for a  
4           network connection from a second network element;  
5           responding with a first packet; and  
6           if a first response to said first packet is expected by said first network element,  
7           determining expected contents of said first response, and  
8           if said expected contents of said first response to said first packet require a  
9           response,  
10           responding with a second packet before receiving said first  
11           response.

1           2. (Currently Amended) The method of claim 1, further comprising:  
2 sending a second configuration request packet to said second network element.

1           3. (Original) The method of claim 1, further comprising:  
2 if said first configuration request packet includes at least one unsupported option,  
3           responding with a configuration reject packet.

1           4. (Original) The method of claim 3, further comprising:  
2 if said first configuration request packet includes at least one supported option  
3           having at least one unsupported value,  
4           responding with at least one configuration-NAK packet for said supported  
5           option having at least one unsupported value.

1           5. (Original) The method of claim 4, wherein said configuration-NAK packet  
2 includes at least one suggested supported value for said supported option having at least  
3 one unsupported value.

1           6. (Currently Amended) The method of claim ~~4~~ 5, further comprising:  
2 responding with a first configuration-ACK packet having said supported option  
3 with said suggested supported value before receiving a response to said  
4 configuration-NAK packet.

1           7. (Original) The method of claim 6, further comprising:  
2 starting a re-send timer.

1           8. (Original) The method of claim 7, wherein a value of said re-send timer is  
2 dynamically determined according to a network traffic condition.

1           9. (Original) The method of claim 7, further comprising:  
2 setting a state of said network connection to 'ACK-sent' after sending said first  
3 configuration-ACK packet.

1           10. (Currently Amended) The method of claim 7, further comprising:  
2 setting ~~said a~~ a state of said network connection to 'open' after sending said first  
3 configuration-ACK packet.

1           11. (Original) The method of claim 8, further comprising:  
2 if said re-send timer expires before a response to said second configuration  
3 request packet is received,  
4 re-sending said first configuration-ACK packet,  
5 restarting said re-send timer, and  
6 repeating said steps of re-sending and restarting until said response to said  
7 second configuration request packet is received.

1       12. (Original) The method of claim 11, further comprising:  
2       if said response to said second configuration request packet is received,  
3       analyzing said response to said second configuration request packet.

1       13. (Original) The method of claim 12, further comprising:  
2       if said response to said second configuration request packet is a second  
3       configuration-ACK packet,  
4       setting said state of said network connection to 'open', and  
5       discarding any further responses.

1       14. (Currently Amended) The method of claim 12, further comprising:  
2       if said response to said second configuration request packet is not said a second  
3       configuration-ACK packet,  
4       resetting said state of said network connection, and  
5       initiating conventional PPP negotiation.

1       15. (Currently Amended) The method of claim 10, further comprising:  
2       if said re-send timer expires before said a response to said second configuration  
3       request packet is received,  
4       re-sending said first configuration-ACK packet,  
5       resetting said state of said network connection to 'ACK-sent',  
6       restarting said re-send timer, and  
7       repeating said steps of re-sending and restarting until said response to said  
8       second configuration request packet is received.

1       16. (Original) The method of claim 15, further comprising:  
2       if said response to said second configuration request packet is received,  
3       analyzing said response to said second configuration request packet.

1        17. (Original) The method of claim 16, further comprising:  
2        if said response to said second configuration request packet is said second  
3                configuration-ACK packet,  
4                determining said state of said network connection, and  
5                if said state of said network connection is not set to 'open',  
6                setting said state of said network connection to 'open'.

1        18. (Original) The method of claim 17, further comprising:  
2        discarding any further responses.

1        19. (Original) The method of claim 16, further comprising:  
2        if said response to said second configuration request packet is not said second  
3                configuration-ACK packet,  
4                resetting said state of said network connection.

1        20. (Original) A network element comprising:  
2        means for receiving a first configuration request packet at a first network element  
3                for a network connection from a second network element;  
4        means for responding with a first packet;  
5        means for determining expected contents of said first response if a first response  
6                to said first packet is expected by said first network element; and  
7        means for responding with a second packet before receiving said first response if  
8                said expected contents of said first response to said first packet require a  
9                response.

1        21. (Currently Amended) The network element of claim 20, further comprising:  
2        means for sending a second configuration request packet to said second network  
3                element.

1        22. (Original) The network element of claim 20, further comprising:  
2        means for responding with a configuration reject packet if said first configuration  
3        request packet includes at least one unsupported option.

1        23. (Original) The network element of claim 22, further comprising:  
2        means for responding with at least one configuration-NAK packet for said  
3        supported option having at least one unsupported value if said first  
4        configuration request packet includes at least one supported option having  
5        at least one unsupported value.

1        24. (Original) The network element of claim 23, wherein said configuration-  
2        NAK packet includes at least one suggested supported value for said supported option  
3        having at least one unsupported value.

1        25. (Currently Amended) The network element of claim ~~23~~ 24, further  
2        comprising:  
3        means for responding with a first configuration-ACK packet having said  
4        supported option with said suggested supported value before receiving a  
5        response to said configuration-NAK packet.

1        26. (Original) The network element of claim 25, further comprising:  
2        means for starting a re-send timer.

1        27. (Original) The network element of claim 26, wherein a value of said re-send  
2        timer is dynamically determined according to a network traffic condition.

1        28. (Original) The network element of claim 26, further comprising:  
2        means for setting a state of said network connection to 'ACK-sent' after sending  
3        said first configuration-ACK packet.

1       29. (Currently Amended) The network element of claim 26, further comprising:  
2       means for setting said a state of said network connection to 'open' after sending  
3       said first configuration-ACK packet.

1       30. (Original) The network element of claim 27, further comprising:  
2       means for re-sending said first configuration-ACK packet if said re-send timer  
3       expires before a response to said second configuration request packet is  
4       received;  
5       means for restarting said re-send timer if said re-send timer expires before a  
6       response to said second configuration request packet is received; and  
7       means for repeating said steps of re-sending and restarting until said response to  
8       said second configuration request packet is received if said re-send timer  
9       expires before a response to said second configuration request packet is  
10      received.

1       31. (Original) The network element of claim 30, further comprising:  
2       means for analyzing said response to said second configuration request packet if  
3       said response to said second configuration request packet is received.

1       32. (Original) The network element of claim 31, further comprising:  
2       means for setting said state of said network connection to 'open' if said response  
3       to said second configuration request packet is a second configuration-  
4       ACK packet; and  
5       means for discarding any further responses if said response to said second  
6       configuration request packet is a second configuration-ACK packet.

1       33. (Currently Amended) The network element of claim 31, further comprising:  
2       means for resetting said state of said network connection if said response to said  
3       second configuration request packet is not said a second configuration-  
4       ACK packet; and

5 means for initiating conventional PPP negotiation if said response to said second  
6 configuration request packet is not said second configuration-ACK packet.

1 34. (Currently Amended) The network element of claim 29, further comprising:  
2 means for re-sending said first configuration-ACK packet if said re-send timer  
3 expires before said a response to said second configuration request packet  
4 is received;  
5 means for resetting said state of said network connection to 'ACK-sent' if said re-  
6 send timer expires before said response to said second configuration  
7 request packet is received;  
8 means for restarting said re-send timer if said re-send timer expires before said  
9 response to said second configuration request packet is received; and  
10 means for repeating said steps of re-sending and restarting until said response to  
11 said second configuration request packet is received if said re-send timer  
12 expires before said response to said second configuration request packet is  
13 received.

1 35. (Original) The network element of claim 34, further comprising:  
2 means for analyzing said response to said second configuration request packet if  
3 said response to said second configuration request packet is received.

1 36. (Original) The network element of claim 35, further comprising:  
2 means for determining said state of said network connection if said response to  
3 said second configuration request packet is said second configuration-  
4 ACK packet; and  
5 means for setting said state of said network connection to 'open' if said state of  
6 said network connection is not set to 'open'.

1 37. (Original) The network element of claim 36, further comprising:  
2 means for discarding any further responses.

1           38. (Currently Amended) The network element of claim 16 35, further  
2 comprising:  
3           means for resetting said state of said network connection if said response to said  
4           second configuration request packet is not said second configuration-ACK  
5           packet.

1           39. (Original) A network element comprising:  
2 a processor; and  
3 a network interface coupled to said processor, wherein said processor is  
4 configured to  
5 receive a first configuration request packet at a first network element for a  
6 network connection from a second network element,  
7 respond with a first packet, and  
8 if a first response to said first packet is expected by said first network  
9 element,  
10 determine expected contents of said first response, and  
11 if said expected contents of said first response to said first packet  
12 require a response,  
13 respond with a second packet before receiving said first  
14 response.

1           40. (Currently Amended) The network element of claim 39, wherein said  
2 processor is further configured to  
3 sending a second configuration request packet to said second network element.

1           41. (Original) The network element of claim 39, wherein said processor is  
2 further configured to  
3 respond with a configuration reject packet if said first configuration request  
4 packet includes at least one unsupported option.



1           42. (Currently Amended) The network element of claim 3 41, wherein said  
2 processor is further configured to  
3           respond with at least one configuration-NAK packet for said supported option  
4           having at least one unsupported value if said first configuration request  
5           packet includes at least one supported option having at least one  
6           unsupported value.

1           43. (Original) The network element of claim 42, wherein said configuration-  
2 NAK packet includes at least one suggested supported value for said supported option  
3 having at least one unsupported value.

1           44. (Currently Amended) The network element of claim 42 43, wherein said  
2 processor is further configured to  
3           respond with a first configuration-ACK packet having said supported option with  
4           said suggested supported value before receiving a response to said  
5           configuration-NAK packet.

1           45. (Currently Amended) The network element of claim 6 44, wherein said  
2 processor is further configured to  
3           start a re-send timer.

1           46. (Original) The network element of claim 45, wherein a value of said re-send  
2 timer is dynamically determined according to a network traffic condition.

1           47. (Original) The network element of claim 45, wherein said processor is  
2 further configured to  
3           set a state of said network connection to 'ACK-sent' after sending said first  
4           configuration-ACK packet.

1           48. (Currently Amended) The network element of claim 45, wherein said  
2 processor is further configured to  
3           set said a state of said network connection to 'open' after sending said first  
4           configuration-ACK packet.

1           49. (Original) The network element of claim 46, wherein said processor is  
2 further configured to  
3           re-send said first configuration-ACK packet if said re-send timer expires before a  
4           response to said second configuration request packet is received;  
5           restart said re-send timer if said re-send timer expires before a response to said  
6           second configuration request packet is received; and  
7           repeat said steps of re-sending and restarting until said response to said second  
8           configuration request packet is received if said re-send timer expires  
9           before a response to said second configuration request packet is received.

1           50. (Original) The network element of claim 49, wherein said processor is  
2 further configured to  
3           analyze said response to said second configuration request packet if said response  
4           to said second configuration request packet is received.

1           51. (Original) The network element of claim 50, wherein said processor is  
2 further configured to  
3           set said state of said network connection to 'open' if said response to said second  
4           configuration request packet is a second configuration-ACK packet; and  
5           discard any further responses if said response to said second configuration request  
6           packet is a second configuration-ACK packet.

1           52. (Currently Amended) The network element of claim 50, wherein said  
2 processor is further configured to  
3           reset said state of said network connection if said response to said second  
4           configuration request packet is not said a second configuration-ACK  
5           packet; and  
6           initiate conventional PPP negotiation if said response to said second configuration  
7           request packet is not said second configuration-ACK packet.

1           53. (Currently Amended) The network element of claim 48, wherein said  
2 processor is further configured to  
3           re-send said first configuration-ACK packet if said re-send timer expires before  
4           said a response to said second configuration request packet is received;  
5           reset said state of said network connection to 'ACK-sent' if said re-send timer  
6           expires before said response to said second configuration request packet is  
7           received;  
8           restart said re-send timer if said re-send timer expires before said response to said  
9           second configuration request packet is received; and  
10          repeat said steps of re-sending and restarting until said response to said second  
11          configuration request packet is received if said re-send timer expires  
12          before said response to said second configuration request packet is  
13          received.

1           54. (Original) The network element of claim 53, wherein said processor is  
2 further configured to  
3           analyze said response to said second configuration request packet if said response  
4           to said second configuration request packet is received.

1        55. (Original) The network element of claim 54, wherein said processor is  
2 further configured to  
3        determine said state of said network connection if said response to said second  
4        configuration request packet is said second configuration-ACK packet;  
5        and  
6        set said state of said network connection to 'open' if said state of said network  
7        connection is not set to 'open'.

1        56. (Original) The network element of claim 55, wherein said processor is  
2 further configured to  
3        discard any further responses.

1        57. (Original) The network element of claim 54, wherein said processor is  
2 further configured to  
3        reset said state of said network connection if said response to said second  
4        configuration request packet is not said second configuration-ACK packet.

1        58. (Original) A computer program product for negotiating point-to-point  
2 protocol (PPP), encoded in computer readable media, said program product comprising a  
3 set of instructions executable on a computer system, wherein said set of instructions  
4 configured to  
5        receive a first configuration request packet at a first network element for a  
6        network connection from a second network element;  
7        respond with a first packet; and  
8        if a first response to said first packet is expected by said first network element,  
9        determine expected contents of said first response, and  
10        if said expected contents of said first response to said first packet require a  
11        response,  
12        respond with a second packet before receiving said first response.

1           59. (Currently Amended) The computer program product of claim 58, wherein  
2 said set of instructions is further configured to  
3 send a second configuration request packet to said second network element.

1           60. (Original) The computer program product of claim 58, wherein said set of  
2 instructions is further configured to  
3 if said first configuration request packet includes at least one unsupported option,  
4 respond with a configuration reject packet.

1           61. (Original) The computer program product of claim 60, wherein said set of  
2 instructions is further configured to  
3 if said first configuration request packet includes at least one supported option  
4 having at least one unsupported value,  
5 respond with at least one configuration-NAK packet for said supported  
6 option having at least one unsupported value.

1           62. (Original) The computer program product of claim 61, wherein said  
2 configuration-NAK packet includes at least one suggested supported value for said  
3 supported option having at least one unsupported value.

1           63. (Currently Amended) The computer program product of claim ~~61~~ 62,  
2 wherein said set of instructions is further configured to  
3 respond with a first configuration-ACK packet having said supported option with  
4 said suggested supported value before receiving a response to said  
5 configuration-NAK packet.

1           64. (Original) The computer program product of claim 63, wherein said set of  
2 instructions is further configured to  
3 start a re-send timer.

1           65. (Original) The computer program product of claim 64, wherein a value of  
2       said re-send timer is dynamically determined according to a network traffic condition.

1           66. (Original) The computer program product of claim 64, wherein said set of  
2       instructions is further configured to  
3           set a state of said network connection to 'ACK-sent' after sending said first  
4           configuration-ACK packet.

1           67. (Currently Amended) The computer program product of claim 64, wherein  
2       said set of instructions is further configured to  
3           set said a state of said network connection to 'open' after sending said first  
4           configuration-ACK packet.

1           68. (Original) The computer program product of claim 65, wherein said set of  
2       instructions is further configured to  
3           if said re-send timer expires before a response to said second configuration  
4           request packet is received,  
5           re-send said first configuration-ACK packet,  
6           restart said re-send timer, and  
7           repeat said steps of re-sending and restarting until said response to said  
8           second configuration request packet is received.

1           69. (Original) The computer program product of claim 68, wherein said set of  
2       instructions is further configured to  
3           if said response to said second configuration request packet is received,  
4           analyze said response to said second configuration request packet.

1           70. (Original) The computer program product of claim 69, wherein said set of  
2       instructions is further configured to  
3           if said response to said second configuration request packet is a second  
4           configuration-ACK packet,

5           set said state of said network connection to 'open', and  
6           discard any further responses.

1           71. (Currently Amended) The computer program product of claim 69, wherein  
2   said set of instructions is further configured to  
3           if said response to said second configuration request packet is not said a second  
4           configuration-ACK packet,  
5           reset said state of said network connection, and  
6           initiate conventional PPP negotiation.

1           72. (Currently Amended) The computer program product of claim 67, wherein  
2   said set of instructions is further configured to  
3           if said re-send timer expires before said a response to said second configuration  
4           request packet is received,  
5           re-send said first configuration-ACK packet,  
6           reset said state of said network connection to 'ACK-sent',  
7           restart said re-send timer, and  
8           repeat said steps of re-sending and restarting until said response to said  
9           second configuration request packet is received.

1           73. (Original) The computer program product of claim 72, wherein said set of  
2   instructions is further configured to  
3           if said response to said second configuration request packet is received,  
4           analyze said response to said second configuration request packet.

1           74. (Original) The computer program product of claim 73, wherein said set of  
2   instructions is further configured to  
3           if said response to said second configuration request packet is said second  
4           configuration-ACK packet,  
5           determine said state of said network connection, and  
6           if said state of said network connection is not set to 'open',  
7           set said state of said network connection to 'open'.

1           75. (Original) The computer program product of claim 74, wherein said set of  
2 instructions is further configured to  
3           discard any further responses.

1           76. (Original) The computer program product of claim 73, wherein said set of  
2 instructions is further configured to  
3           if said response to said second configuration request packet is not said second  
4           configuration-ACK packet,  
5           reset said state of said network connection